AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): A bonding apparatus comprising:

a bonding tool for holding a chip;

a substrate stage for mounting a substrate thereon;

a moving mechanism for moving said bonding tool and said substrate stage relative to each other in a horizontal plane;

an up-and-down mechanism for moving up and down said bonding tool;

a chip recognition camera disposed to be lower than a level of a substrate mounting surface of said substrate stage to thereby recognize said chip held by said bonding tool from a position below said chip;

a substrate recognition camera disposed above the substrate stage to recognize the substrate mounted on the substrate stage; and

a control device for controlling said up-and-down mechanism and the moving mechanism,

wherein said control device is configured to move said bonding tool so that said chip recognition camera recognizes a lower surface of said chip when the lower surface of said chip is located substantially on a level with a chip bonding surface of said substrate,

wherein said control device is configured to move the substrate recognition camera so that the substrate recognition camera recognizes a position of the substrate mounted on the substrate stage, and

wherein said control device is configured to move said bonding tool to bond said chip onto said substrate based on based on recognition results of said chip recognition camera and said substrate recognition camera.

2. (previously presented): A bonding apparatus according to claim 1, wherein said chip recognition camera is configured so as to be focused on a position which is substantially on a level with the chip bonding surface of said substrate.

3. (previously presented): A bonding apparatus according to claim 1,

further comprising a chip tray for receiving said chip, said chip tray located so as to be lower than the level of the chip bonding surface of said substrate.

4. (canceled).

5. (withdrawn): A method for bonding a chip to a substrate comprising:

holding a chip by a bonding tool;

recognizing said chip held by said bonding tool from a position below said chip by a chip recognition camera disposed to be lower than a level of a substrate mounting surface of said

substrate stage when the lower surface of said chip is located substantially on a level with a chip bonding surface of said substrate;

recognizing said substrate mounted on a substrate stage by a substrate recognition camera disposed above said substrate stage;

positioning said chip and said substrate on the basis of recognition results of said chip recognition camera and said substrate recognition camera; and

bonding said chip to said substrate.

6. (withdrawn): The method for bonding a chip to a substrate according to claim 5, further comprising setting said chip recognition camera to a position where said chip recognition camera is focused on a position which is substantially on a level with said bonding surface of said substrate.

7. (withdrawn): The method for bonding a chip to a substrate according to claim 5, further comprising providing a supply of chips in a chip tray that is disposed so as to be lower than the level of said chip bonding surface of said substrate.

8. (new): A bonding apparatus comprising:

a bonding tool configured to hold a chip, the bonding tool being movable in a first direction;

a substrate stage on which a substrate is mounted, the substrate stage being configured to set the substrate relative to said bonding tool in a reference plane;

a chip recognition camera disposed on an opposite side of said bonding tool with respect to the reference plane to recognize said chip held by said bonding tool; and

a substrate recognition camera disposed on an opposite side of the substrate stage to recognize the substrate mounted on the substrate stage,

wherein said chip recognition camera recognizes a lower surface of said chip in a state that the lower surface of said chip is located on the reference plane, and said substrate recognition camera recognizes a position of the substrate on the reference plane, and

wherein said bonding tool and said substrate stage are controlled based on recognition results of said chip recognition camera and said substrate recognition camera

9. (new): The bonding apparatus according to claim 8, further comprising a chip tray for receiving said chip, said chip tray located so as to be lower than the level of the reference plane.